

Perth

seawater reverse osmosis desalination plant



In April 2005, Western Australia's Water Corporation chose SUEZ to design, build and operate Perth's first seawater desalination plant using reverse osmosis technology, the largest such plant in the southern hemisphere.

The 143,000 m³/d plant was built at Kwinana, 25 kilometers to the south of Perth in Western Australia. The aim was to increase drinking water production capacity for Perth, where conventional freshwater resources are in very short supply.





project

The facility was designed and built under a joint venture between SUEZ and its Australian civil engineering partner Multiplex Engineering Pty Ltd. It includes seawater intake, pretreatment structures, reverse osmosis desalination units and pumping and remineralization units.

The facility started operating at the beginning of the Australian summer in October 2006, just 18 months after the award.

The success of the project in this short timeframe hinges on effective Alliance between the Water Corporation and SUEZ-Multiplex.

The partners are engaged in a trust-based relationship that goes beyond turnkey delivery of the desalination plant: in particular, the Water Corporation has been directly involved in the day-to-day construction of the plant. Then, SUEZ teams will operate the plant during 25 years.

characteristics

	minimum	average	maximum
seawater TSS, mg/l	1	3	9
seawater salinity, g/l	36	36.5	37.1
temperature, °C	14	20.2	26
pretreated water PH	14	20.2	26
pretreated water SDI	6.5	6.8	7
RO 1 st pass TDS, mg/l	(NA)	150-200	250-300
RO 2 nd pass TDS, mg/l	(NA)	10-20	< 50
production TDS, mg/l	(NA)	(NA)	200
production Br ⁻	(NA)	(NA)	0.1

design

reverse osmosis pretreatment

- After screening and pumping, acidification with H₂SO₄ then coagulation with FeCl₃ and organic coagulant aid.
- 2 banks of 12 pressure dual media filters (anthracite + sand) for a total seawater flowrate up to 14,800 m³/h.
- 2 banks of 7 cartridge filters each fitted with 360 cartridges (5 microns).

reverse osmosis

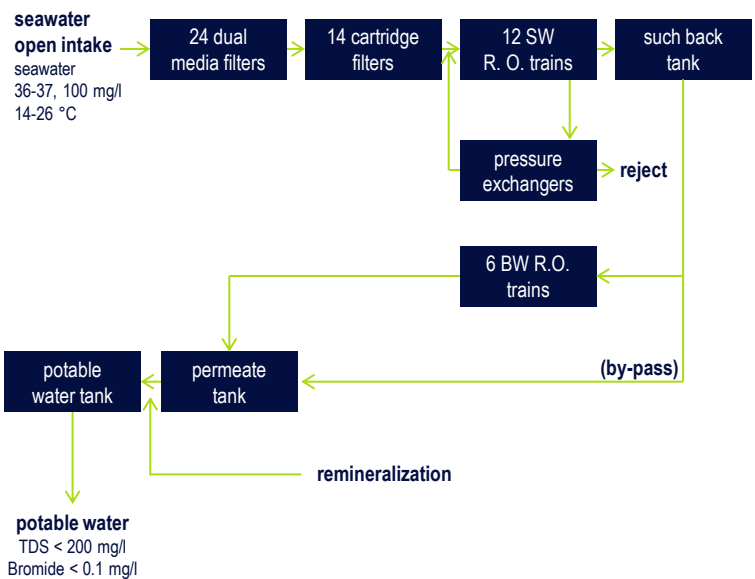
- To achieve a salinity less than 200 mg/l and a bromide content less than 0.1 mg/l, the SUEZ RO design incorporates a double pass.
- 1st pass: 12 trains, fitted with 162 Pressure Vessels each.
- 2nd pass: 6 trains, fitted with 124 Pressure Vessels each.
- All operating parameters fully controlled by means of pressure and flow control loops to automatically compensate temperature fluctuations and membrane permeability and to optimize the energy consumption.

energy recovery

- 16 pressures exchangers ERI PX-220.

remineralization

- Ca(OH)₂ injection.
- Final adjustment of pH by injection of CO₂.



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Since March 2015, all the Group brands (Degreмонт, Ozonia, Aquasource, Ondeo IS, Ameriwater, Infilco, Poseidon...) became SUEZ.

Meanwhile, from now on, the technologies and know-how of our Treatment Solutions offer will be distinguished with the label degreмонт®.

